

Appl. No. 10/038,771
Amdt. Dated March 6, 2006
Reply to Office Action dated December 6, 2005

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A method of making a preform, comprising:

providing reinforcing material comprising chopped fibers;

providing binder material;

mixing the reinforcing material and the binder material so that the binder material adheres to the reinforcing materials, wherein the step of mixing the reinforcing material and the binder includes emitting a stream of reinforcing material and emitting a stream of binder and mixing the streams to form a mixture of reinforcing material and binder;

~~passing heating the mixture through a heating zone produced by as the mixture is being formed by applying heat to the mixture from~~ a heat source external to the mixture;

applying a stream of the mixture to a solid support surface thereby adhering the mixture to the solid support surface; and

shaping and solidifying the mixture to form the preform.

Claim 2 (original): The method of claim 1, wherein the step of applying a stream of the mixture to the support surface occurs in the absence of forced air at the support surface.

Claim 3 (original): The method of claim 1, wherein the step of applying a stream of the mixture to the support surface occurs without use of a plenum system.

Claim 4 (original): The method of claim 1, wherein the step of applying a stream of the mixture includes spraying the mixture against the support surface.

Claim 5 (currently amended): A method of making a preform, comprising:

- providing reinforcing material comprising chopped fibers;
- providing binder material;
- mixing the reinforcing material and the binder material, wherein the step of mixing the reinforcing material and the binder includes emitting a stream of reinforcing material and emitting a stream of binder and mixing the streams to form a mixture of reinforcing material and binder;
- ~~passing heating the mixture through a heating zone produced by as the mixture is being formed by applying heat to the mixture from~~ a heat source external to the mixture;
- applying a stream of the mixture to a solid support surface thereby adhering the mixture to the solid support surface; and
- shaping and solidifying the mixture to form the preform,
- wherein in the step of applying, a vacuum is not applied to said solid support surface.

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Claim 6 (previously presented): The method of claim 5, wherein the chopped fibers comprise chopped fiberglass.

Claim 7 (original): The method of claim 1, wherein the step of providing the reinforcing material includes emitting a stream of chopped fibers.

Claim 8 (previously presented): The method of claim 1, wherein the step of providing binder includes emitting a stream of binder particulate.

Claim 9 (original): The method of claim 1, wherein the step of providing binder includes conditioning the binder before mixing the binder with the reinforcing material.

Claim 10 (original): The method of claim 9, wherein conditioning the binder includes heating the binder.

Claim 11 (canceled).

Claim 12 (previously presented): The method of claim 1, wherein emitting the streams of reinforcing material and binder includes emitting a plurality of streams wherein the streams are layered together.

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Claim 13 (previously presented): The method of claim 1, further comprising conditioning the binder prior to emitting the stream of binder.

Claim 14 (original): The method of claim 13, wherein conditioning includes heating the binder.

Claim 15 (canceled).

Claim 16 (previously presented): A method of making a preform, comprising:
providing reinforcing material comprising chopped fibers;
providing binder material;
combining the reinforcing material and the binder material so that the binder material adheres to the reinforcing material, wherein the step of combining the reinforcing material and the binder includes combining a stream of reinforcing material and a stream of binder, wherein the reinforcing material and the binder are combined;
applying heat to the stream of combined reinforcing material and binder to form a heated stream;
applying the heated stream to a solid support surface thereby adhering the combination of reinforcing material and binder to the solid support surface, wherein in the step of applying, a vacuum is not applied to said solid support surface; and
shaping and solidifying the mixture to form the preform,

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wherein the heat is from a heat source external to the reinforcing material and binder.

Claim 17 (previously presented): The method of claim 16, wherein the reinforcing material and the binder are combined while the heat is applied.

Claim 18 (previously presented): The method of claim 16, wherein applying heat includes forming a controlled heat zone and feeding the reinforcing material and binder through the heat zone.

Claim 19 (previously presented): The method of claim 18, wherein a flame is used in creating said heat zone.

Claim 20 (original): The method of claim 1, wherein the step of applying the mixture to a support surface includes applying the mixture to a vertical support surface.

Claim 21 (canceled).

Claim 22 (original): The method of claim 1, wherein the step of applying the mixture to a support surface includes applying the mixture to a surface having ambient air conditions.

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Claim 23 (original): The method of claim 1, wherein the step of applying the mixture to a support surface includes applying the mixture to a surface having apertures therein.

Claim 24 (canceled).

Claim 25 (original): The method of claim 1, wherein the step of solidifying the mixture includes cooling the mixture so that it conforms to the shape of the support surface.

Claim 26 (original): The method of claim 1, further comprising applying a moldable material to the preform to form a composite and curing the composite to form a part.

Claim 27 (original): The method of claim 26, further comprising applying a vacuum to the composite before the part is cured.

Claim 28 (previously presented): A method of making a molded part using a preform, comprising:

providing reinforcing material comprising chopped fibers;

providing binder material;

contacting the reinforcing material and the binder material, wherein a stream of reinforcing material and a stream of binder are contacted with one another, and passed through a heating zone as they are being directed towards a solid support surface;

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applying the contacted streams of reinforcing material and binder, after they have passed through the heating zone, on the solid support surface so as to adhere them in place; solidifying the applied materials to form the preform; and applying at least one of heat and pressure to the preform to form and shape a molded part.

Claim 29 (original): The method of claim 28, further comprising adding resin to the preform prior to applying at least one of heat and pressure to the preform.

Claims 30 - 39 (canceled).

Claim 40 (previously presented): A method of making a preform adapted for use in forming a structural part, comprising:

providing a stream of fibrous reinforcing material;
providing a stream of heated binder material;
combining the stream of fibrous reinforcing material and the stream of heated binder material to form an adhesive mixture, and wherein the reinforcing material and the binder material are introduced into a heat zone in forming the adhesive mixture; and
spraying the adhesive mixture of the reinforcing material and the binder material against a perforated support surface such that the mixture adheres to the perforated support surface, wherein a vacuum is not applied to said perforated support surface during said

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spraying, and is shaped and solidifies into the preform, said preform incorporating said perforated support surface,

wherein the heat zone is provided by a heat source external to the fibrous reinforcing material and heated binder.

Claim 41 (previously presented): The method of claim 40, wherein spraying the adhesive mixture includes spraying the mixture onto the support surface under ambient air conditions.

Claims 42-43 (canceled).

Claim 44 (previously presented): The method of claim 5, further comprising applying a moldable material to the preform to form a composite and curing the composite to form a part.

Claim 45 (canceled).

Claim 46 (previously presented): The method of claim 28, wherein in the step of applying the contacted streams on the solid support surface, a vacuum is not applied to said solid support surface.

Claim 47 (previously presented): A method of making a preform, comprising:

- providing reinforcing material comprising chopped fibers;
- providing binder material;
- mixing the reinforcing material and the binder material so that the binder material adheres to the reinforcing materials, wherein the step of mixing the reinforcing material and the binder includes contacting a stream of reinforcing material and a stream of binder and combining the streams;
- applying heat to the stream of combined reinforcing material and binder to form a heated stream;
- applying the mixture to a solid support surface thereby adhering the mixture to the solid support surface, wherein in the step of applying, a vacuum is not applied to said solid support surface;
- shaping the mixture after application to the support surface and prior to solidifying;
- and
- solidifying the mixture to form the preform, said preform including said solid support surface.